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ABSTRACT

The use of various resources in special education in Scotland is described in this collection of 12 papers. Written by classroom teachers, the first five relate individual attempts to deal with particular problems, i.e., science education for the visually handicapped, two different approaches to teaching the mentally handicapped, art for the physically handicapped, and sound perception training for the deaf. The next four articles illustrate the type of provision that can result from cooperation between teachers and outside agencies in dealing with specific difficulties. Descriptions of materials for use with the mentally handicapped include two mathematics projects, a reading and language resource center, and an audiovisual kit for social education called "The Kerr Family." The two final papers outline examples of attempts to provide on-going support systems which are constantly on hand and to which teachers can refer pupils with individual learning difficulties. (CHC)

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RESOURCES IN SPECIAL EDUCATION

Occasional Working Paper 1

Scottish Council for
Educational Technology

IR009926

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Richard N. Tucker

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

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The Scottish Council for Educational Technology was established in November 1975 as part of an overall plan to realign and expand the activities of the former Scottish Film Council to meet the needs of education and training in the 1970s.

One of the Council's stated objectives is

> To promote and encourage the understanding and application of educational technology in its widest sense throughout education formal and informal ....., by means of
>
> (i) The establishment of links between individuals, institutions and authorities, both national and international, for the purpose of contributing to the development of communication in learning and training systems.
>
> (ii) The appropriate provision of information, advice and services designed to facilitate the most effective application, utilisation and management of educational technology.

The Council has recognised as an area of high priority for support the wide field of special education and, stemming from this recognition, has commissioned its first Working Paper–a classroom view of resources in special education. In addition the Council proposes to mount an exhibition, provide a screening of materials and host a symposium in May 1976 on various aspects of special education.

Foreword

This initiative by the Scottish Council for Educational Technology is warmly welcomed by all who work in the field of special education in Scotland. There is on occasion a feeling that achievements in special education do not receive the wide publicity they deserve. This may in part be due to the fact that special schools and classes are relatively few in number and tend to be isolated from the mainstream of education.

There was a time when the staff of special schools were somewhat inward looking but growing public recognition of the outstanding achievements of many handicapped children and their teachers has encouraged greater participation by the handicapped in activities which they can share with their non-handicapped peers. Successes in the Duke of Edinburgh Award Scheme, in music festivals, in art competitions, sports meetings, Outward Bound activities and in SCE examinations at both "O" and "H" Grade have greatly boosted the aspirations of the handicapped, their parents and their teachers.

Clearly one of the most important factors in realising these achievements is motivation on the part of both pupil and teacher. When strong motivation is combined with the flair and imagination possessed by many of our special school teachers, the results are highly commendable.

The most precious resource of all in special education is the teacher, ably backed by a team of professionals. The extension of the special education qualification course to one year spent full-time in a College of Education and the provision of these courses at five of our Colleges should ensure a good supply of teachers well-trained in the use of material resources which are available. Nevertheless the articles in this publication show the ingenuity of the teachers themselves in creating their own materials to overcome difficulties experienced by their pupils. The hallmark of good special education is the identification of individual pupil needs and the devising of programmes of work to meet these. There is ample evidence of that approach in this booklet.

The exhibition to be held in the Scottish Centre for Educational Technology in May 1976 will be a show window for special education in Scotland. It will provide an opportunity for those not closely associated with special education as well as for those working with the handicapped to examine some of the resources described in this publication and other material gathered from special schools throughout Scotland. Such an exhibition deserves to be widely supported.

ALASTAIR MILNE

Scottish Education Department.

Resources in Scottish Special Education

Introduction

The Expanding Concept of Special Education

A glance at the official publications relating to special education in Scotland over the last few years reveals a definite change in attitude.

The Education (Scotland) Act of 1962 refers to special education as being for 'Pupils who suffer from disability of mind or body". Whereas in the Education (Scotland) Act of 1969, which amended the previous Acts, special education is defined as:

> "Education by special methods appropriate to the requirements of pupils whose physical, intellectual, emotional or social development cannot, in the opinion of the education authority, be adequately promoted by ordinary methods of education and shall be given in special schools or by other appropriate means."

The Melville Committee thought that the categorisation of mentally handicapped children as 'educable', 'trainable', and 'intrainable', needed to be reconsidered, stating that:

> "It is no longer appropriate to describe any person as ineducable. In these terms, the most profoundly handicapped has as much right to education as the most able." (para. 39).

Following the Melville Report the Education Act of 1974 made provision for the education of the severely mentally handicapped. So the provision of special educational facilities has been one of extension both by type of handicap and by depth of handicap.

Accordingly special education is now being provided in Scotland for a wide range of handicaps of a physical, intellectual and emotional nature. The means by which this education is provided differs throughout the country.

In some areas there is extensive provision of separate facilities for the handicapped, whereas in others there is a tendency towards a maximum of integration within the ordinary school system. The reasons for such choices are not always educational ones; it is obviously easier to operate a separate school system in districts where there is a greater concentration of population. It is probably fair to say, however, that in Scotland, as in the rest of Britain, the tendency in special education is towards greater integration (see the evidence to the Warnock Committee) although no one would ever claim that complete integration could ever be a possibility. There will always be some children for whom integration within the ordinary school system is not possible. But whether in ordinary schools, or in special classes, or in special schools, there is a wide provision of facilities for children who, for whatever reason, cannot benefit from the ordinary school system.

It is in the interest of everyone involved in special education and, especially, in the interest of the children, that every effort be continually made to maintain and improve the effectiveness of the provision. Special education is concerned with basic problems of communication. Encouraging, as it does, the examination of fundamental educational issues, special education must be in a position to profer specialist advice to the rest of the educational world.

Educational Resources

An educational resource has been defined as,

> "Anything in the environment that may be of value in forwarding the thinking and understanding of the pupils, whether it be an artefact, a person or an experience, an account, an explanation or a piece of information." (Holder & Mitson - 1974).

Books, teaching kits, and filmstrips are educational resources but educational resources are not merely books, teaching kits, and filmstrips. People are resources, as are skills and methods of organising them. It is the employment of resources in this wider sense which is the subject of this paper.

The View from the Classroom

Educational resources are used wherever there is education. We are concerned with how they are being used in special education here and now, Scotland in 1976. We present a series of views of Scottish special education. It is more in the nature of a photograph album than an encyclopedia, a number of snapshots trying to capture the flavour of a particular time and place. What resources are being used in Scottish special education today? How are they being used? To find out we have gone to the people who should know. People whose daily lives are involved with special education. Various facets of special education are represented. Comments are made on the education of the blind, the deaf and other physically handicapped, the mentally and severely handicapped are also included. In the subject areas, Science, Mathematics, Art, and Social Education are specifically considered. Pupils' ages covering the entire range of compulsory education are dealt with. Although we include a selection of articles covering different handicaps, subjects and ages, we do not claim that this is fully representative of practice in special education in Scotland.

The first contribution is from Colin Weatherley who teaches science in the Royal Blind School, Edinburgh.

Science Education for the Visually Handicapped

J. C. Weatherley, M.A., Dip.Ed., M.I. Biol.
Education Research Fellow and Teacher at
Royal Blind School, Edinburgh

Need for the Course

The new Scottish Certificate of Education 'O' grade science syllabuses and examinations have been generally welcomed by teachers. Unfortunately they have posed particular problems for visually handicapped candidates since the syllabuses emphasise practical work - often highly visual - and the examinations contain many questions involving the interpretation and/or labelling of diagrams, graphs, charts and tables.

With these problems in mind, the Royal Blind School and the Scottish Education Department set up a project at the school in June 1973 to devise means of teaching the new 'O' grade biology syllabus to visually handicapped pupils. A particular reason for this remit was that an 'O' grade pass in a science subject or mathematics is a required university entrance qualification.

It soon became apparent, however, that this remit was largely irrelevant to the needs of the great majority of the school's pupils, who are not potential university candidates. Two further relevant factors are, firstly, that virtually none of the pupils take up careers as scientists and, secondly, that the numbers in any one year are so small that classes are of a very mixed intellectual and visual ability.

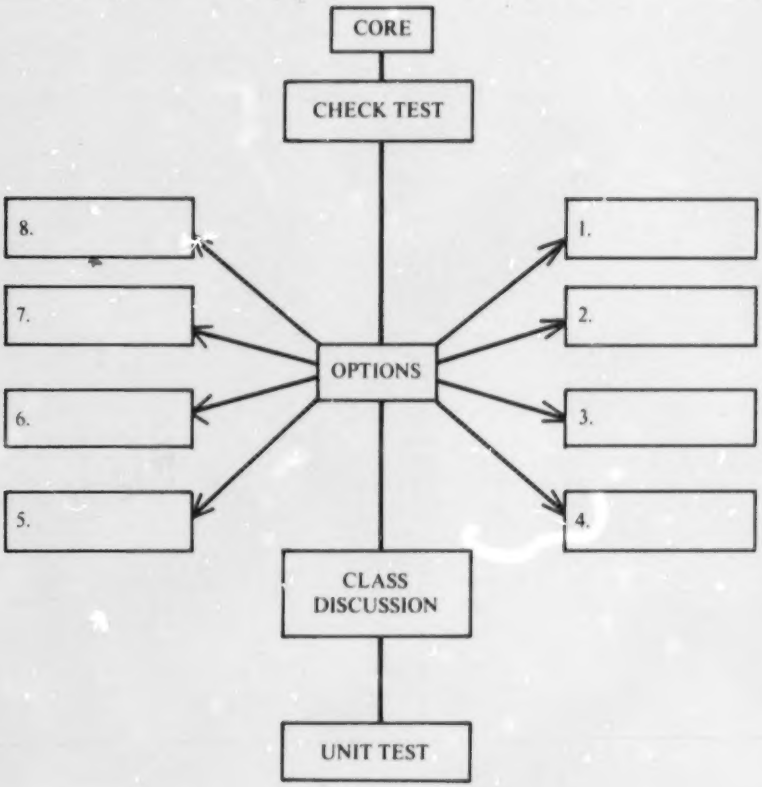
Clearly what was required was a course developed specifically to meet this situation. It would have to take into account the widely differing abilities, experiences, interests and needs of pupils within any one learning group and yet still lead to a certificate which would prove a suitable 'passport' to tertiary education for the small number who require this.

Aims of the Course

The aims of the course now being developed stem from a view of the pupils in relation to their environments. Science experiences are used to help their intellectual, physical and emotional development; to provide them with knowledge and understanding of themselves, their social environment and the natural world and to encourage them to develop skills, attitudes and interests relevant to their social development.

Such a viewpoint determined, firstly, that the course content should be selected primarily for its relevance to the pupils' present and future needs and interests rather than for its academic importance. Secondly, in order to encourage social development a link has been developed with a local comprehensive school, Firrhill High School. Thirdly, because of the enforced mixed ability groupings the material had to be organised to allow maximum choice to the pupils.

The main course, for S3 and upwards, consists of a series of units covering such topics as electricity, several aspects of health education, food and drink, machines and the home. The structure of a typical unit is shown below:



The pupils in S3 and S4 normally work in pairs–one Blind School pupil with one Firrhill School pupil. While the core consists of material relevant to all pupils they are allowed to work at their own speeds. Once through the core they take a short check test to ensure that they have mastered the main points and then choose and work through one or more of the options, depending on the time available.

The options vary widely in their intellectual and physical demands, as well as in content. Able pupils clearly benefit from different activities from less able pupils; pupils with no sight require different experiences from pupils with considerable partial vision. At the end of the time available for the unit the whole class discuss their differing experiences in the options and then they take the unit test. In some units projects replace options, when pupils choose a topic of study related to the core work and pursue this in their own way.

At the end of the course most pupils are assessed for a Certificate of Secondary Education grade, with the North Regional Examination Board in Newcastle-upon-Tyne. The assessment is based on their standard of work in the unit tests, projects, and in a final course test. A C.S.E. grade 1 is accepted as equivalent to an 'O' level pass in England and Wales, but not in Scotland. However, Edinburgh University has agreed that a grade 1 C.S.E. in science will not debar visually handicapped candidates from entrance.

Teaching Material

One consequence of the approach adopted is that most of the material has to be written specifically for the course and regularly brought up to date. Therefore Braille is of limited use because it is slow to produce and bulky. Further, we believe that both pupils in a working pair should use a common means of communication whenever possible. Cassette tapes are used extensively.

In some units the greater part of the core theory work is provided on tape. A working pair listen through headsets and follow the main points of theory in a text/activity booklet produced in large print and braille. Many Blind School pupils can follow the large print sheets, thus reinforcing the common means of communication. At various points the tape instructs them to switch off and carry out practical activities from the print or braille sheets. They answer questions related to these activities and then return to the tape, continuing in this manner until they finish the core work. They then take the check test and if this is satisfactory, choose their first option. The options rarely require tapes; any teaching approach loses its effectiveness if overdone!

At various points in all the units, colour slides, film loops, plastic models and, particularly, raised plastic diagrams are used where appropriate. The latter are made specially for the course by the Scottish Schools Science Equipment Research Centre in Edinburgh.

The description so far is of the course in its present form. It has, however, changed in many ways over the last two years and will no doubt continue to change in the light of further experiences–though the aims and major course objectives will not change. Some of the more important changes that have taken place to date are discussed below. They apply particularly to the most developed unit, 'Power to the People' (electricity) but similar comments apply to other units.

Teaching Methods

Before the link with Firrhill School was developed the tapes carried both theory material and instructions for practical work. The latter were dictated slowly and many of the words were spelt out, to improve brailling and spelling skills. The pupils listened to the theory and used brailled activity sheets in a separate booth room, before moving into the laboratory. However, this system slowed progres. so much that interest was quickly lost.

Therefore new tapes were made, containing theory and practical instructions at normal speed. The pupils listened to the theory and carried out practical work from the tape, all in the laboratory. Three problems arose here. Firstly, it is difficult to carry out practical activities while wearing an earpiece or headset. Secondly, it is difficult to refer back to previous instructions on a tape. Thirdly, pupils listening to theory were disturbed by the noise of practical work since the cheap headsets first used were inadequately insulated. Therefore better quality headsets were purchased and brailled activity sheets were prepared for pupil use. Most work is now done in the laboratory, apart from revision or project preparation in the booth room.

Much time was also wasted by frequent changes from tape to activity sheets. To overcome this, theory and practical sections now cover a maximum of 20 minutes each whenever possible.

The next set of problems arose when the link with Firrhill School was started. The pupils worked in pairs, listening to tape theory and then carrying out practical work from typed and brailled sheets. Blind School pupils could not read the typed sheets; Firrhill pupils could not read the brailled sheets– the result was poor communication. Tests then showed that about half of the Blind School pupils could read large print and detect details in illuminated slides and film loops. Therefore a large-print typewriter, film loop projector, and several illuminated slide magnifiers were bought and are now used to good effect.

It was further discovered that pupils' attention wandered after listening to a tape for a few minutes, so large-print and braille text sheets were produced. These contain an outline of the tape theory and provide visual or factual stimulation to supplement the tape, whose commentary now refers to specific lines of text or diagrams so that the pupils follow in some detail. This has certainly increased interest and concentration on the material.

Social Aspects

The problems described so far are concerned with the organisation of learning. A second important set of problems relate to the social aspects of the link with Firrhill School. As a result of many trials and errors five points stand out:

1. Pupils should work as far as possible in independent pairs. Whole-class teaching still has an important role, but, particularly at the start of the course, the one-to-one relationships in independent groups make the pupils rely on each other for progress rather than following external direction.

2. It is worth allowing a few minutes at the beginning of each lesson for general gossip!

3. Pupils should be matched as carefully as possible. Fully-sighted pupils are encouraged to explain apparatus to totally blind partners and to allow them an important role in practical work.

4. Much lesson time can be lost through travelling and timetable differences. Link lessons are best timetabled for the beginning of morning or afternoon sessions.

5. Above all, **the learning experience must be interesting, the materials well-organised**. One link class has progressed from disappointing to highly encouraging social relationships after being switched from an incompletely-organised unit to a well-organised one.

At this stage of the project the pattern of S3 and S4 work has been clearly set. There is evidence that most of the pupils enjoy the learning experiences now being provided. Most have also formed good social relationships. The social aspect should further improve as the organisation of the work improves.

Conclusion

Visually handicapped children are, generally, normal children with sight problems! This may seem obvious, yet too often they are treated as special cases, different in kind rather than degree from their peers. The aims of the project, outlined in paragraph 5, are surely relevant to all secondary school-children. Most of the problems tackled in this project therefore differ in degree rather than kind from those encountered in all branches of secondary education. Perhaps much of the material–and some of the methods–are also capable of wider application.

The core/option structure of a typical unit was selected because of the widely differing abilities and interests within each learning group; but **all** learning groups are mixed-ability and mixed-interest to some degree.

Tapes were used originally to replace the printed or brailled word and hence overcome the communication barriers but they are now used more positively than this. Songs, sound effects, news items and documentaries can all be added to a tape, to give more impact than a book. Further, many pupils with reading problems should benefit from taped learning materials.

Perhaps the most fundamental point of all, however, is that through the aegis of a C.S.E. Mode 3 scheme, teachers can become involved in **all** aspects of their pupils' education. No longer need we teach externally defined syllabuses, to externally set and marked examinations. Instead we can think out and state our own aims and objectives, select and develop appropriate learning materials and methods, then assess pupil progress and evaluate the success of our own work. Perhaps it is only when we become involved in all those aspects of our children's education that we can be called true professionals.

Colin Weatherly has shown us how by imaginative use of resources he has made possible a science curriculum for visually handicapped pupils. This was done by observing the needs of the pupils, understanding their handicap and attempting to compensate for it so that their needs could be met. With blind or partially sighted pupils the handicap is obvious. In teaching science there are fairly well defined areas of knowledge to be covered.

The next article deals with a much less clearly defined areas of special education. The handicaps are mixed PH and MH but predominantly MH. Even MH is not a clear definition. Mentally handicapped pupils can differ greatly one from the other. Each pupil has his own set of potentials and limitations. The teacher must be aware of these for each individual. The 'subject' dealt with is preparation for post-school life, a wide enough remit. Yet the method of approach is in some ways similar to that used by Colin Weatherley.

Mrs. Broadley and Mrs. Rogerson have observed their pupils' needs, noted their handicaps and are endeavouring to prepare them for school leaving in a way which minimises their handicaps.

A School-Leavers Programme

Mrs. E. A. Broadley (Head Teacher) and
Mrs. B. Rogerson (Principal Tutor, Guidance),
Dalton School, Cambuslang

Dalton School is a day school for PH and MH pupils. The building is situated in a very pleasant country setting, somewhat difficult of access for visiting parents. The encatchment area has a radius of approximately five miles, transport in and out of which takes about one and a quarter hours for each of four school buses. The physically handicapped roll has dropped considerably over recent years, largely due to the disappearance of T.B., rickets, malnutrition etc., and PH cases are now usually much more seriously handicapped. The MH group is composed principally of slow learners, many with perceptual problems, a few with motor, sensory, or emotional problems. Their domestic backgrounds range through the whole gamut of poor, good, and excellent, with regard to material and social considerations.

Our needs are to devise teaching strategies suited to individual teaching in small classrooms; to decide in what situations group classroom education may be given; to decide where specialist help is needed to cope with personal problems which may overcast school work and behaviour. This help may be provided by the Child Guidance Service, Social Work Department, Speech/Physio therapy or confidential guidance from school staff.

At the moment the size of the school leavers class varies from sixteen to eighteen. It is principally composed of mentally handicapped pupils with a very few physically handicapped. The general aim of the School-leavers' Programme is to prepare pupils for Adult/working life outside school. Teacher-imposed discipline now begins to give precedence to self-discipline. Society's rules must now be discussed with a view to understanding the reasons behind them. When a breach of discipline occurs, wherever possible the matter is discussed and reasons found as to why a particular act constitutes anti-social behaviour. Any pupils found seriously wanting in appreciation of the necessary social standards can have extended private sessions with the 'Guidance' teacher, who is also the teacher of the leavers group.

Pupils are encouraged to appreciate the reasons behind school rules. The following are examples of rules which have been discussed in the classroom and have been agreed to by the pupils.

1. Although the leavers have free use of their room at interval times, which includes the self-run coffee bar, the record player must not be used before 12.30 p.m. as this might disturb junior classes still at work.

2. The door must be kept closed at lunchtime to prevent younger children from entering and creating unnecessary work for nurse attendants.

In making use of their privileges, such as running their coffee bar, making their own way to their common room after lunch, travel by public transport, the leavers are expected to show a sense of responsibility. They must appreciate that privilege is allied to responsibility.

General Class Work - Arithmetic

1. **Money** - all aspects of pay packet, budgeting, leisure spending, savings, cash, credit, hire purchase, percentage as found in pay rise or sale-time reductions (10% off etc.).

   Work is covered by discussion, blackboard work, followed up by the use of graded work cards-made by the teacher. (I have not yet found any commercially produced maths books which cover adequately school-leaver arithmetic topics).

   Visits were made to Safeway Food Stores and Grants Furniture Stores in connection with money programme.

2. **Metric Measurement**-familiarisation with terms: Centimetre, metre, kilometre; use of ruler, linear tape, trundle wheel in measurement. Terms: Length, breadth, area. Practical application in terms of measuring for carpets, curtains, and wall coverings.

   Once again this work is covered by discussion, practical exercises in measurement around the school, blackboard work, and followed up by graded card work.

3. **Capacity**-in previous school-leaver classes, the above two topics have taken all available time, but this year, having this group of pupils for a longer period, I intend to progress after Easter to Capacity, following the same pattern of procedure as with the first topics.

   Comment: Varied intellectual ability means that some children are able to progress further than others in any arithmetical programme, but I aim to send every pupil out understanding what is meant by **deductions** from pay, or a **percentage** rise, or **interest** on a Hire Purchase agreement.

ENGLISH

Words-Spelling as such I do not teach-we keep instead a 'word book'. Twice weekly, words, with their meanings, are written into these books. The words fall into certain groups and tie up with work being covered in other subjects, e.g. pay packet, safety at work, notices and signs, factory words, shop words, etc. The aim here is that pupils will recognise these words when they meet them outside school and-more important-understand them.

Written English-Where reading age is low, written English continues, as it was lower down the school, with phonic and comprehensive exercises. Those pupils with higher reading age use 'school-leavers workbook', and practise letter writing of all types.

Reading-Reading is done mostly from "Trend" and "Trigger" series; formal reading tuition continues where required; better readers are free to choose library books.

RELIGIOUS EDUCATION

Whereas with younger pupils we follow a traditional Bible story approach, with the older pupils we introduce discussion topics such as:

1. Honesty at work-avoiding the temptation to indulge in petty pilfering.
2. Relationship with parents-attitudes to staying out late, suitable places of entertainment, boy/girl relationships.
3. Alchoholism.

SEX EDUCATION

This I have not approached as a formal subject, but I have tried to answer any questions which happened to arise. Composition of class governs the type of discussion; some groups are much more mature than others, e.g. a small group of mature girls asked about contraception and I tried to give them the facts. On another occasion, two boys asked why it was that boys were attracted to girls–more difficult to answer, but I tried.

Sometimes a T.V. programme comes up with an episode-e.g. "Scene"–here two girls discussed having slept with their boyfriends. After programme, we discussed the dangers of promiscuous sex, illegitimate babies, etc.

SCHOOL LEAVER TOPICS

Three afternoons a week are devoted to School Leaver Topics. Lessons take the form of discussion with note taking for personal reference. Some topics are covered jointly with teachers of Business Studies, Modern Studies or Drama.

Topics

1. Choosing a job–self assessment–some material from Bulls Eye publications have been useful here.
2. Interview techniques.
3. Telephoning, writing, asking for work.
4. Form filling.
5. Starting job–getting on with people etc.
6. Trade Unions.
7. Safety–this term, this was expanded into a full term's work, incorporating outside speakers and demonstrators, e.g. S.S.E. Board, Gas Board, Fire Service.
8. Time–clocking in, time tables, 24 hour clock etc.
9. Budgeting–paying bills, avoiding debt etc.
10. Social Services–Doctor, Dentist, Social Work, Samaritans, Marriage Guidance Council, Legal Aid, Adult Illiteracy etc.
11. All types of social situations–'Lifeline' situation cards help here.
12. All aspects of setting up home–teenage marriage, working wives, baby minding etc.
13. Types of work and job satisfaction; visits back up this section–Laird–Portch visit, Coopers Fine-Fare Warehouse.

Finally, socialising with "Leavers" from other schools is worth mentioning; this takes the form of tea in our own school, then a visit from 5 p.m. to 7.30 p.m. to the school which is acting host, the evening taking the form of a disco or other suitable entertainment. Friendships are formed, role of host and other courtesies are encouraged.

Work Experience – has been incorporated into our programme during the last three terms. Generally speaking, the teacher and/or headmistress make a personal contact with an employer, complete all necessary negotiations–which can prove quite time consuming, as Insurance, Trade Unions, safety, parental permission, medical inspection, requests for approval, then for proceeding,

all have to be seen to. Each pupil goes to his new, separate environment, shop, factory, office, warehouse, Senior Occupation Centre, whichever is suitable, for a five day week. Considerable preparatory work is done beforehand and full discussions take place afterwards. If an offer of employment happens to be forthcoming, this is looked on as an added bonus, but it is not the primary intention of the Work Experience scheme. Close cooperation with the Youth Employment Officer is enjoyed at all times.

At the moment the school leavers class has a markedly happy atmosphere and very few behaviour problems. Long may it be so.

OTHER TEACHING MATERIALS FOUND TO BE USEFUL

Reading

"Manxman" 6 titles by Dent.
"Inner Ring" 3 series 12 titles each, by Ernest Benn Ltd.
"They Were the First" 12 titles by Oliver and Boyd.
"Club 75" 12 titles by McMillan Educational.
"Jim Hunter" 8 titles by Methuen.
"Solos" 8 titles by Hart Davies.
"Crown Street Kings" 9 titles by McMillan.

Audio Visual Aids

Used both in a supportive role, and as basis for certain lessons, e.g. "Marriage Scene" which consists of eight booklets and a resource pack of twelve slides and a cassette tape, produced by Collins.

"Working in God's World" set of 3 tapes, 3 film strips and notes, produced by Educational Productions. (There are others in this series available from Bell College Resource Centre).

"The Hopwood Family" a recording.
"The Kerr Family" a programme of slides and cassette tape by Frank McKee.

T.V. Series: "Going to Work", "Living in Scotland", "Scene", "Time to Think", "The Messengers", "Meeting Our Needs" (chosen episodes).

Mrs. Broadley and Mrs. Rogerson have mustered a wide range of resources in the form of teaching materials and equipment. They have also utilised external resources such as supermarkets, furniture stores and factories. Particularly interesting is the schools involvement with 'work experience' which must be of immense value in breaking down the walls of the school and preparing the pupils to take their rightful place in adult, working, society.

Mrs. Smith, in the next article, deals mainly with people as resources. Her school has been affected more than most by the implications of the 1974 Educational Act. The severely handicapped are no longer regarded as ineducable. They now have to be provided for within the educational system. Mrs. Smith outlines how she and her staff coped with the increase in the roll of her school. In doing so she gives us an insight into the most recent area to come within the fold of special education.

Education of Severely Mentally Handicapped Children

Mrs. H. P. Smith, Headteacher,
Lynebank Hospital School, Dunfermline

The total roll at the Special Teaching Unit at Lynebank Hospital is now 120. 75% of these children are from the Region, while most of the remainder are from various parts of the U.K. Contact is maintained with some families through regular visits, while in other cases there is no contact of any kind.

Promises or realisation?

Declaration of General and Special Rights of the Mentally Retarded–United Nations–24th October 1968.

Article II "The mentally retarded person has a right to proper medical care and physical restoration and to such education, training, habilitation and guidance as will enable him to develop his ability and potential to the fullest possible extent, no matter how severe his degree of disability. No mentally handicapped person should be deprived of such services by reason of the costs involved".

Melville Report–23rd November 1972

Paragraph 39 "If, therefore, by education we understand an individually orientated process designed to enable each person to realise his potentialities to the greatest extent possible, without any presumptions as to what the outcome might be, it is no longer appropriate to describe ANY person as ineducable. In these terms, the most profoundly handicapped has as much right to education as the most able".

Education (Mentally-Handicapped Children) (Scotland) Act–May 1974

"To make provision as respects Scotland for discontinuing the classification of mentally-handicapped children as unsuitable for education at school, to impose a duty on education authorities to provide for the education of such children whether accommodated in a hospital within the meaning of the Mental Health (Scotland) Act 1960 or otherwise, and for purposes connected therewith".

In 1975, the Special Teaching Unit at Lynebank Hospital faced the task of integrating an additional group of 46 children into the existing situation. The children were all profoundly mentally retarded and in every case but one, multiply handicapped (see tables). Their ages ranged from 4 - 16 years and there were 30 boys and 16 girls in the group. The majority had been in hospital care since infancy.

The task involved did not relate to the learning situation alone, although the difficulties here were formidable enough.

1. There was the problem of the mass admittance of a group of children which significantly increased the size of the existing school, creating serious accommodation difficulties.

2. There was a lack of staff experienced in this type of work, a situation made worse by the secondment of several established members of staff, either to obtain the Article 51 Endorsement or to attend the year's full-time SCOTEC Course for Instructresses. Their replacements and the extra staff recruited have proved their worth many times over in the last few months but their lack of experience made their difficult task even more onerous, particularly in the initial stages. Considering the degree and number of the children's handicaps our staff/pupil ratio (1:5) is less generous than that applying in those schools previously known as Occupational Centres, and this imposes extra strains.

3. There were also the particular problems created by the nature, variety and severity of the children's handicaps themselves and the less tangible although still daunting disabilities implicit in the situation of the child in an institution.

The immediate problem of accommodating the extra numbers was solved when we were able to lease from the hospital a vacant ward. This, although not ideal, provided a suite of rooms of varying size, together with open areas which could be utilised for play and reception spaces. The ward was, however, at some distance from the existing school premises. It would have been easy and convenient to place the new group there and to run it as a separate unit for the profoundly handicapped children. We rejected this arrangement, however, as being contrary to the spirit of the Melville recommendation. It was also felt that the introduction of a separate and isolated unit of this sort would undermine staff morale. It was decided, therefore, to introduce the children, wherever possible, in ones and twos into the existing classes within the Unit and to integrate the children between both halves of the school without regard to ability levels.

We were aware, however, that the existing programme (See Appendix) however well-tried, however modest and realistic in its aims, was beyond the compass of the group with which we were now dealing. We therefore instituted a series of programmes which, it was hoped, would help overcome some of the worst deficits.

For the most severely handicapped children we concentrated on sensory stimulation: visual, auditory and tactile.

For the younger, mobile children we introduced a particularly stimulating nursery environment. Here the children have space to move about, opportunities for sand and water play and there is the opportunity for both free and supervised activities. The nursery environment provides apparatus to encourage all the basic developmental skills and a wide selection of educational aids, materials, apparatus and toys.

For the older children programmes were even more individual, based upon an estimate of the child's capabilities, limitations and deficits.

Particular attention was paid to language development and communication throughout all the groups.

To widen the experience of the children, as well as to give the teachers and instructresses more time for individual work, three of the most experienced members of the staff were selected to operate a withdrawal system, whereby

individuals or small groups of children were taken from their classes for extra attention or stimulation. This system of circulating relief staff has been of general benefit, enabling us to extend the provision and scope of language stimulation, art and homecraft for all the children in the Unit.

Inevitably difficulties have arisen and adjustments have had to be made to our original programme. We had intended to introduce the new group of children gradually, on a part-time basis, to allow for smaller groups and more individual attention. This we quickly abandoned, partly because of the difficulties in collecting and returning children to wards, partly because of the commendable enthusiasm of the staff once they began work with their groups. Currently only 7 of the children attend part-time. The rest enjoy a full school day. The difficulties facing staff with children with such a variety and range of abilities have forced us to modify our integrated programme to some extent and to put a few children with like handicaps into a group.

The children have now been part of the Unit for a little over three months. It is satisfying to report that all children under the age of 16 who are resident in the hospital now attend the school and the venture appears to be a resounding success. Some individual gains have been spectacular:

Cot and bed-bound children are now sitting up and taking an active interest in their surroundings. Other children who showed no inclination to explore now move purposefully about the rooms making good use of the equipment. Some verbalise meaningfully and respond to verbal instructions.

There appears generally to have been immeasureable gains in gross and fine motor control, and the individual span of attention have improved. 'Time-out' rooms for hyperactive or destructive children, which we began as a precaution, are now rarely needed and are utilised for individual and group teaching.

The gains have been general and have generated an overall atmosphere of success. Where the groups have been integrated the success of the profoundly handicapped has helped staff to raise their level of expectations for all the children in the group.

We hope to quantify the gains made for each child through the diary of observations kept for each child by the member of the staff involved. We also use the Raeden Schedules, kindly made available by Mrs. Nancy Thomson through the Child Guidance Service. An initial assessment was made for each child within a month of entry to provide a base line and it is planned to repeat this twice during the session as a measure of progress and as a guide to future remedial programming for the individual child.

It is possible that better results might have been achieved had the 46 children in the new in-take been introduced more gradually or in smaller numbers into the existing Unit. Certainly the process would have been less exhausting. Had we started with a tailored programme for every child we could have been explicit in our estimate of success. Having broken the back of the problem we shall be better able to take stock of the individual needs of the children as it is evident that our blanket acceptance of the group and our rough classification of their needs have paid their own dividends. We have not bothered the staff overly with details so that they have been able to evolve strategies for the whole group.

Finally, our withdrawal system, although imposing heavy burdens on the teachers and instructresses concerned, has brought flexibility to the teaching situation and enables us to offer a variety of help and expertise where and when it is most needed.

	Total No. of Pupils	118
Feeding	Has to be fed	25
	Needs help in feeding	17
	Feeds himself	76
Fits	Fits	41
Speech	No speech	62
	Few words	40
	Full speech	16
Sight	Visual Defect	23
	Blind	8
Hearing	Hearing Defect	4
	Deaf	–
Incontinence	Incontinent	47
Mobility	Freely mobile	83
	Walks, but unsteady	6
	Walks, with support	4
	Other degree of mobility	2
	Can only roll over	5
	Immobile	18

Total No. of Pupils	118
Mental Handicap	118
Epilepsy	41
Brain Damage	56
Hyperactive	28
Behaviour Problem	35
Sight	31
Hearing	4
Speech	102
Physical Handicap	43

Number of Handicaps

1	1
2	13
3	37
4	33
5	19
6	14
7	1

PROGRAMME

BIRTHDAYS	IMAGINATIVE, STIMULATING, ENVIRONMENT	SEASONS
FESTIVALS	POSITIVE STRUCTURED PROGRAMME	SPRING
EASTER	REINFORCE BY EXPERIENCE	SUMMER
HARVEST	CREATE RECEPTIVE RESPONSIVE ATMOSPHERE	AUTUMN
HALLOWE'EN		WINTER
CHRISTMAS		

CREATIVE ACTIVITIES

LANGUAGE DEVELOPMENT EMOTIONAL STABILITY

ART DRAMA MUSIC MOVEMENT

SELF COMPETENCE

SOCIAL COMPETENCE

COMMUNICATION

EDUCATION

SENSORY EXPERIENCE

SPEECH HEARING SIGHT TOUCH

TASTE SMELL

MOVEMENT RHYTHM

COMPREHENSION

INITIATIVE

COLOUR SHAPE SIZE TEXTURE

SPATIAL AWARENESS

PLAY EXPERIENCE

PRE-READING PRE-NUMBER

INTRODUCTORY READING AND NUMBER WORK

If Mrs. Smith dealt with people as resources then the next contributor deals with the widest interpretation of the term 'educational resources'. The subject is art and the pupils are physically handicapped in a variety of ways. Many of these are visual handicaps which would make art seem a most inappropriate subject.

Yet not only do they attempt art but have a degree of success at certificate level. Probably more than any other subject, art uses the entire environment as a resource, and, with Art, it is the restricted environment of these pupils which threatens to be their greatest handicap.

Art for Physically Handicapped Pupils

Catherine J. McCallum, D.A.,
Summerton School, Glasgow

Summerton Secondary School provides a full six year course for physically handicapped children. The handicaps cover a wide range and include partially sighted, thalidomides, spastics, heart cases, epileptics, spina bifida cases and accident victims. There are some hundred and forty children, their ages ranging from twelve to nineteen. The social background is very mixed, a number have considerable deprivation. It is common for the father to be unemployed. Many have little or no academic or cultural background. Several children are resident in corporation homes-some because of temporary domestic problems, other, because of physical disabilities which have caused the parent to reject them. Home circumstances, large families, many factors contribute towards an inability to cope with difficult and trying conditions. The school is co-educational and has an intake of both Protestants and Catholic children.

The initial problem with most handicapped children in an art class, apart from physical arrangement, is the difficulty of getting them to create. They have experienced physical problems at an early age and, since this is a practical subject, they seem to feel inhibited from the outset. It is not the grammar of the subject that produces difficulties, the teaching of drawing or painting techniques, but, in the beginning, it is the whole concept of art-the desire to create something that is their own-that proves a stumbling block. There is an interest in the subject and a wish to make some art form, but mostly it stops there because there is a preconceived idea that it is too difficult and quite beyond their capabilities. Compared with ordinary children of similar age (and here I mean first year pupils) they lack ideas, have generally poor imagination and very little idea of assembling any visual concepts. Children who have no handicaps, whether they can produce something interesting artistically or just interesting,produce uninhibitedly and give freely of their own personality and are much less critical.

This barrier has to be broken down before any real teaching or appreciation of the subject can be realised. The pupil must be able to produce something which appears to him to be possible and within the scope of his own particular limitations. It must also satisfy his intelligence, his eye and his critical faculties. It is essential to dispel any ideas of failure and consequently the first efforts must be executed quickly and apparently effortlessly. At this early stage the only concession to a variety of handicaps is to find a medium which will make it reasonably easy for each child to make a start and get a finished work which will restore his confidence. It is important that each pupil works at his own speed. Every encouragement must be given.

One of the easier ways of making a start is to do so through repetitive pattern. Discussion and demonstration of variety of line to form shapes leads to the pupils designing and producing their own ideas. Further instruction shows how the one shape repeated in different arrangements can give quite different patterns. A lesson on the application of colour produces instant results and no

matter how simple the result each child has achieved something of his or her own without too much effort. This is merely a beginning but from it the teacher can gradually lead on to aspects of the subject which demand less rigidity and direction from him or her. The progression can be very slow but at this stage it is extremely important to encourage no matter how poor or elementary the result. The average and more intelligent pupil seeks for himself, experiments more freely and for a time with often much less than the desired result. Confidence can be sustained if one can highlight an element of success in the effort and treat the failure humorously.

It is at this stage that individual handicaps can be closely observed and an attempt made to deal with them. Since the subject demands the use of eye and hand and quite a bit of actual physical movement there are many problems to be overcome.

It is essential to have a room large enough to give each pupil the maximum space and physical comfort in which to work. There are obvious instances. Partially sighted children need to be close to their own work and many groups are needed if still life or life drawing is to be attempted successfully. Sight difficulties vary from child to child and the only way to get around them is to find out by observation and discussion with the pupil about the exact problem.

The solution can often be helped or evolved by sitting down and imagining oneself with that particular difficulty. Wheelchair cases have certain awkwardness in working at art desks. Up to date this has been quite a problem but one which looks like being solved by the introduction of a new design of table which takes a swivel board and has a movable tray for paints and water.

Space is a necessity for spastics because of their jerky and uncontrolled hand movements. Paint is liable to spray and not just on to their own work but on to anyone nearby. Some "Leg handicaps" prefer to work in a standing position and thalidomides invariably work standing. The latter, I find, will make an attempt at almost anything and do very well considering their difficulty in holding brushes and mixing colour. One or two dwarfed children require high chairs in order to work with any facility. If space allows, easy movement to and from the sink would be possible for those in wheelchairs. This makes for total participation and in some instances would have a certain therapeutic value. The ideal room situation would be room for every kind of arrangement-space for wheelchairs to circulate, partially sighted plenty of opportunity for close work, spastics and thalidomides in a well spaced group. It is frustrating and time consuming to have to change furniture for each class in order to suit individual needs. Sinks, cupboards, shelves etc. should all be within the reach of all handicaps. If this was possible pupil and teacher would have less frustration and much more time could be given to actual work.

Once the pupil has realised he can create something within the limitations of his own particular handicap anything is possible. Often the handicap seems non-existent although one knows that the child is still spastic or partially sighted or paints with a brush held in his mouth and that the difficulties are still there. This apparent lessening of the disability is simply because the pupil has adjusted to his handicap in relation to drawing or painting and can produce to his own standard something intelligible in his own eyes and the eyes of his teacher. Their interest and progress is often stimulated by seeing the work of classmates who have either greater facility or more talent. The partially sighted, as they grow older and have more knowledge, find themselves able to use pencil with quite a degree of sensitivity.

Spastics find a method of painting that suits their less controlled hand movements and produce lively and interesting work. With practice these movements can, in many cases, become more controlled and contained. The ultimate achievement for many has been the success of entering open competitions and winning awards. One of our pupils, an accident case, who has suffered the loss of a leg and both arms and who paints with a brush controlled and gripped with his teeth has given inspiration to many. This boy has acquired an 'O' grade in Art and is about to sit a higher grade. He has had considerable success in various competitions. His stamina, his ability, his originality and his amazing surmounting of his physical handicaps has been an active example to everyone else. Our first pupil to sit and achieve a Higher Art Certificate was a boy with partial sight-no sight in one eye and glaucoma in the other. His problems were numerous, amongst them an inability to see straight vertically and a difficulty with tone. These were worked out by pupil and teacher to a satisfactory result. His success, brought about by intelligent handling of his handicap, an absorbing interest in the subject, practical and academic, was a tremendous breakthrough in what is essentially a visual subject.

Most of the methods tried seem, at the very least, to have lessened the problems. The progression of the partially sighted from black wax crayon to pencil and the spastics from a very loose beginning to a much more controlled conclusion.

The limits of success in many cases are due not to lack of ability or endeavour but to total lack of visual experience and observation. This applies particularly to the less mobile. So much of art is seeing, observing, experiencing all kinds of surroundings and situations. Many are very limited in experiences outside school to the journey by school bus and their home environment.

An Art Room with a view would be of great advantage. Visits to Galleries and Museums would help to fill voids. Expeditions to coast and country would give a realisation of seascape and landscape, both of these are unknown and unobserved facets of the subject for the majority.

The possibility of wandering in countryside or on the seashore and observing and collecting 'found' objects would be of much use to everyone. In a short working day it is difficult to find time to make visits to places and it is left for the teacher to produce materials and describe scenes and make the best of a general lack of active pupil participation.

From the varied resources of art to one specific resource and a highly technological one-an electronic organ-and its value in the education of deaf children-a musical instrument might seem an odd piece of equipment in a school for the deaf but Sister Esther explains the important part it plays.

Sound Perception Training for Deaf Children

Sister Esther (Cavanagh) M.A., Headteacher,
St. Vincent's School for the Deaf, Tollcross, Glasgow

In a school which caters for over 100 children, aged 3 years to 16+, children who are either visually-handicapped or who have a hearing loss (either deaf or partially-hearing), there is such a multiplicity of learning problems and of ways of tackling them, that it is difficult to isolate any one for particular mention, so-while appreciating the desirability of objectivity in an article of this kind-I have finally made my choice on the basis of "nearest the heart . . . . ."!

One of the principal aims of a school for the deaf is to help the children to achieve an acceptable standard of speech. In this case, acceptable=intelligible, i.e., intelligible to as wide an audience as possible. While training as a teacher of the deaf I was very impressed by the programme of Sound Perception in use at the school (St. Mary's, Cabra, Dublin) in which the Course was based, a programme whose end-product was rhythmic, intelligible speech. The success of this programme (viz. the speech used by the children) was obvious 'proof of the pudding'! From then on it was my aim and object to see Sound Perception training established as a regular part of the curriculum at the school in which I teach, in order to boost the speech-teaching there. For this programme, the most essential piece of equipment is an electronic organ, and,as we had none in the school at that time, I had to content myself with makeshift arrangements until the great day arrived when we acquired our organ (thanks to the overwhelming generosity of the 9th and 11th Dumbarton Guides) who 'adopted' our deaf department. At last, in 1974 then, Sound Perception proper could begin.

The Sound Perception training method consists of 'bombarding' the deaf child with sound. Here I must make it clear that this is a method for profoundly deaf children (i.e. those with a hearing loss greater than 60 db at 125 to 250 Hz, and greater than 90 db at higher frequencies). These children tend to depend much more on vision and visual clues than on sound or auditory stimulation. Nevertheless, given adequate sound stimulation, at as early an age as possible and on a regular basis, they can learn to respond to auditory clues and to associate meaning with sound.

While a drum can be used for introductory work in this field, its application is limited as it is not capable of producing differences in pitch or duration. The requirements then are: an electronic organ, an amplifier, and a loudspeaker (preferably two of these). Why an organ? This instrument is capable of producing pure tones which are more easily perceived by a deaf child than sound containing overtones; it (the organ) can be amplified to give an output of 130-140 db; (our "latter-day" Discos leave us in no doubt about this ! !); it can give variety of pitch and of duration, the implications of which will be explained later. I deliberately use the word "perceived" rather than "heard" when referring to the deaf child's reaction to the sound of the organ, because these children can feel the sound in their heads, chest, abdomen. (The same applies to hearing people, of course, but we become so accustomed to hearing that we tend not to be always aware that we can perceive sound in these other ways).

The most 'crude' form of perception of sound in this way is through the feet, by vibration of floor-boards, but as this tends to encourage dependence on contact with the floor or the ground, we try to eliminate it by encouraging the more 'refined' forms of perception, i.e. in head, chest, etc. To prevent vibration, we have a layer of concrete under the floorboards of our stage! Thus, having literally 'set the stage', we then proceeded to expose our deaf children to Sound Perception training.

The children who made most use of this approach were from two classes, ages ranging from 5 to 9 years, approximately 15 children in all. Although they had already some acquaintance with sound, through the use of group and individual hearing aids, they were all subjected to the first stages of Sound Perception training, so that all would have common ground on which to build their auditory experience. The most basic step is to recognise 'Sound ON' and 'Sound OFF'. To make this as attractive as possible for young children, it is presented in the form of games e.g., children stand still, then begin to run around when 'music' starts, then stop dead again when sound ceases. Here again, a word of explanation is necessary. "Music" is the euphemism of euphemisms in this context! The teacher taking the Sound Perception class needs **no** knowledge of music whatever. All that is required is that she know how to switch on the organ, and learn that the low notes are at the 'left hand end' of the keyboard and the high notes at the other end, with all other variations in pitch coming somewhere in between!!

The important point is that she can make the organ produce sound which the children learn to recognise and to 'interpret', e.g., by moving in some appropriate way when they 'hear' it. Having once acquired the ability to do this, they then learn to distinguish 'long' and 'short' ('giant' steps for long notes and 'fairy' steps for short notes), after which they proceed to distinguish 'high' and 'low'-a more difficult task ('be an elephant' for low notes and 'be a bird' for high notes, etc.). This, I think, should be enough to indicate the scope of this method, insofar as it is concerned with response to sound, but you may well be asking 'What has this to do with speech?'

Two important elements in all intelligible speech are pitch and rhythm. For hearing people, these aspects of speech, like all others, are acquired through imitating the speech patterns which we hear around us. Pre-lingually deaf children do not, however, hear and imitate speech in this way and so we must find anologies for them-means of presenting to them the qualities of speech in a way that they can 'perceive' and understand, - hence the pitch and rhythm excercises of the Sound perception programme. The process of acquiring speech, therefore, becomes a direct teaching/learning situation, in which every method, piece of equipment or other aid which helps in this work is of value. Very high on this list of aids I would put the organ. Through the exercises and activities indicated above, the concept of rhythm in particular is very effectively communicated to deaf children, by developing an appreciation of the implications of duration of sound. Now, among deaf children, as among the hearing, there are some who are more naturally disposed to have a sense of rhythm than others but, with all, the organ is an invaluable aid in developing this sense. Thus, rhythm of movement is one of the chief aims in the early stages of the programme but it does not stop there. Once a fair degree of confidence has been achieved, the children can then be taken forward to the stage of applying this to speech. Here again, we rely on the potential of the organ, by playing the 'tune' of a word/or phrase on it, choosing, of course, phrases, etc., which are or should be, in the vocabulary of the children at this particular stage. At any given time, we would be working with not more than

three or four words or phrases, all having a different rhythm, e.g. 'Hello', 'That's the bell', 'Yes', 'How old are you?', etc. These are 'played' on the organ in the rhythm which they normally have when spoken; e.g. 'That's the bell' has a long stress, then a short one, followed by another long, thus: ——— – ———. It need be played on only one note, provided the rhythm is correct. However, as an extra aid, a different (higher) note can be played for 'bell' to indicate the stress which would be present when the sentence was spoken. It is very simple to invent a code for speech **rhythms**; we can use a system of lines and dots (e.g. 'Put it on the table') or, better still, the accepted musical notes (esp. semibreves, crotchets, and–at more advanced stages–quavers)

e.g., 'Put it on the table'. The children involved in the scheme being described here soon learned to understand these symbols and to associate them with the sounds they heard on the organ. Here again, a game can be made out of the learning situation, by having flash-cards or charts with the 'words and music' written large so that the children can identify each phrase when they 'hear' it.

Having once reached the stage of identifying the rhythms in this way, the children then have to proceed to adopting these phrases into their spoken vocabulary. It goes without saying that this is the crucial point in the exercise but the children do, more easily, use the correct rhythm when speaking these words and phrases than, perhaps, others which they have not 'experienced' in Sound Perception. On the other hand, once they have had this kind of experience with some phrases, they can more readily understand what we are 'getting at' when we try to put over phrases which they have not 'perceived' by means of the organ. It would obviously be a slow and laborious (not to say impossible!) task if we had to work through the English language, phrase by phrase in this way, – and teaching speech to deaf children **is** slow and laborious, on the part of both pupil and teacher, (even when it **is** a labour of love!) but when the children have grasped the idea of rhythmic speech they can – albeit with frequent proddings and reminders – apply this to their speech in general. The classes involved in our S.P. programme use the spontaneous language of their 'News' to build up a series of 'stories' which form their Reading Book and which is treated in the manner described above (using musical notation), with the results which seem to hold out hope for the future.

In the case of the particular group of children referred to in this article, it is really too early to quote results, as the full benefit of the Sound Perception method is really apparent only after perhaps four or five years of regular S.P. sessions and these children have had only two years of the programme so far. Again, this training was not carried out in any scientific way e.g., using a control group NOT subjected to Sound Perception. It is not clear, therefore, how much of the children's progress in speech was due to the Sound Perception training. Nevertheless, the children do have an awareness of rhythm. They are spontaneous and alert in their speech attitudes and can, without undue difficulty (though with reminders!), introduce an element of rhythm into their speech.

If I were to give an honest appraisal of our S.P. programme I would have to admit that it has not always thrived on ideal conditions. To improve the situation I would like to see the following amendments:

a) I would like to begin the training with our Nursery Class, as so much depends on starting at as early an age as possible.

b) I think daily sessions should be given: 2 or 3 sessions per week is not sufficient.

c) I think regular recordings (perhaps once per term) of the children's speech would be of value, using the particular language covered in the term's work and also 'unseen' reading.

d) Alongside this, it would be a help to have a control group, not using S.P., in order to have some check as to whether the S.P. was producing the desired results (though I would prefer that all children have the benefit of S.P., rather than deprive some for the sake of proving a point!).

When all this has been done, only then comes the 'acid test'. Will strangers, who have no experience of listening to deaf children's speech, be able to understand the children? Only if the answer is 'Yes', have we achieved what we set out to do. (Obviously there are other elements of speech which I have not touched on, e.g., articulation) and these must be included in the speech programme of the school, but as this particular article concerns Sound Perception training, I have deliberately avoided mentioning these aspects). Rhythm is so important in the whole area of speech and we would hope that by helping the children to develop rhythmic speech, we are in fact helping them to make themselves more easily understood by hearing people as a whole.

The previous five articles have covered a wide range of topics within special education, from coping with the needs of the severely mentally handicapped to presenting physically handicapped pupils for external examinations. They have all been written by classroom teachers and have related individual attempts to deal with particular problems. There are however external agencies which provide assistance to teachers faced with difficulties. The Scottish Education Department allocates funds to various educational research projects which should ultimately, if not immediately, benefit the schools. The next few articles illustrate the type of provision which can result from co-operation between teachers and outside agencies in dealing with specific difficulties. If the previous articles were the 'self-help' approach then the next few must be the 'co-operative' approach to curriculum development. However the emphasis has not shifted from the classroom and in each case it is the teacher in the school who is given the last word on the effectiveness of the resources.

Mrs. Watterson is a lecturer in Primary Education in Jordanhill College of Education. She has an interest in the development of Mathematics teaching in special schools.

Mathematics Project for Mentally Handicapped Children

Mrs. P. R. Watterson, B.A. (Hons.), Dip.C.E.,
Jordanhill College of Education

In April 1974, Miss Margaret Burke of Notre Dame and myself were approached by Her Majesty's Inspectors Mr. Alistair Milne and Mr. John Kiley and asked to organise a Mathematics Course for West of Scotland teachers in the schools for mentally handicapped children. This was in response to a demand from the teachers to be kept abreast of the curriculum developments in the normal schools. Part of the remit was to prepare teacher leaders to present their own courses in the future. It is this part that Miss Burke is currently engaged upon with what little support Mrs. Aileen Duncan of Hamilton and myself can give her in time taken from our normal college programmes.

Prior to the introduction of the course in October 1974, Miss Burke and I visited, between us, most of the participating schools in Ayrshire, Dunbartonshire and Lanarkshire to assess current practice and gauge needs. We persevered in face of the usual difficulties of time and distance to revisit these schools throughout the course as we believed that such contact was essential if teachers were to derive full benefit from the course and if we were going to be able to present one that was relevant and meaningful. On most of the visits we worked with the pupils of the teacher leaders either in groups of classes.

The basis of our course was the idea that, though teachers of slower learning children believed that they were simplifying mathematics for their children by restricting their work to computation, such a narrow interpretation made the work more abstract and therefore more difficult. Thus our course was organised around the interrelated topics of number, measure and shape. We tried to show that this wider approach provided teachers with far more opportunities for reinforcing the basic mathematical concepts with countless concrete examples during the inevitable slower progress of their children through the development stages of acquiring these concepts.

One of the many difficulties facing the teacher of handicapped children is the enormous spread of ability and maturity in even quite a small class: some of the teachers had classes of 17 or more pupils. Ideas which not only improved content but eased organisation were sought. Adaptations of number games, Fletcher's dice games, Clarke's place value games, Dienes' difference and tree games, Michael Holt's pre-number games were all valuable in this respect. Materials such as tangrams and pentominoes, relegated to Maths Clubs in normal schools, were valuable in the classroom programme for the handicapped child, fulfilling his need for so many more experiences at every stage.

Teachers are hard pressed to provide such variety at each level. The ingenuity of these teachers, so long practised in the art, was humbling to witness. Quite early in the course there was a good return of improvements on ideas presented in our hour-long talks or worked through in the follow-up workshop sessions during the in-service day. Children's work returned from the schools by the teacher leaders themselves or as a result of the working visits to these schools by Miss Burke and myself became a major feature in our presentations.

We set up a full equipped workshop in James Reid Street, Saltcoats, for the Ayrshire Group and another in Merkland School, Kirkintilloch, for the Dunbartonshire Schools and the two participating Lanarkshire schools. We gave a series of nine lectures to each group over three terms in these centres and organised the follow-up workshop sessions, providing copious handout sheets each time. The lectures ranged from Early Number, through the stages in Measurement, the integration of Shape, possibilities in Probability and Social Arithmetic. It became clear that there were only three main ideas for every teacher to bear in mind when teaching any new topic or old topic in a new way. Ideas of sameness, difference or order cropped up over and over again–the basic concepts of mathematics. The new way was not so difficult after all. In preparation for the teachers' own work in 1975/76, a number of teachers participated in the presentation sessions during the final term producing their own materials from their classes or commenting on slide presentations of the work in their schools

The session 1975/76, we now have two groups of teacher leaders presenting their own in-service course to all the teachers in the schools for mentally handicapped children in Ayrshire. The energy and enthusiasm of these groups is most exciting: the standard of work displayed in the centre is a reflection of much skilled teaching and an indication of a new emphasis in mathematics teaching in the country. In Dunbartonshire, each of the three schools involved in the project is presenting its own in-service course. Both the work I have seen and that I have heard reports of indicate that a good start has been made. (Miss Burke reports that she has been able to maintain contact established last year between the Merkland teachers leaders and the Ayrshire group, thus widening the spread of ideas, support and enthusiasm. The cross-visiting between the groups presenting the work to the teachers continues). Delays beset the Lanarkshire group who had the difficult task of including two further schools into their in-service course. However, their winter term's preparation has not been wasted as we received word in February that the difficulties have been overcome and the first presentation is underway.

Mrs. Watterson has given an account of the attempt by herself, Miss Burke, and Mrs. Duncan to influence the teaching of mathematics in special schools. This was an in-service training exercise engaged in by Jordanhill, Notre Dame, and Hamilton Colleges of Education. It was an approach to educational innovation via teacher training.

Mrs. Wilson is the headteacher of Bank School, New Cumnock, Ayrshire and she relates, in the following article, the impact which 'New Maths' has had upon her own school.

"New Maths" and the Mentally Handicapped

Mrs. J. Wilson, M.A., Headteacher,
Bank School, New Cumnock

Bank School, New Cumnock, has a roll of 78 mentally handicapped children, ages 5 to 16 years, 30 girls and 48 boys. The school is geographically isolated. The pupils travel to school daily by minibus, from their homes in villages situated in a large catchment area comprising almost the whole of Cumnock and Doon Valley District. This is a declining mining area. There is a high rate of unemployment among the parents, many of whom show little interest in the education of their children. The pupils are grouped by age in classes averaging 16 children. Attendance is average. Neither discipline nor truancy presents problems.

I have always been keenly interested in mathematics and in the teaching of mathematics, so naturally I was eager to introduce the 'New Maths' into the curriculum of the school. However, I felt that, before I embarked on the implementation of such radical changes throughout the school, I ought to be very sure that the methods of teaching and the topics suggested by the 'New Maths' would be advantageous to the children and workable with classes of mentally handicapped children. I decided to try some of the new ideas with small groups taken from various classes and I also asked individual teachers to try these ideas with a whole class. The co-operation of the teachers was essential to this experiment in curriculum development and in this respect I had the wholehearted and enthusiastic support of my staff. The broad headings under which our investigations took place were pictorial representation, number, measure and shape.

Sets, matching and even logic blocks were attempted with the younger children. Games were devised to help with all number work, including the still necessary drilling and a wide variety of concrete materials was used. We experimented with various types of recording and with the use of structured apparatus for teaching the number bonds and notation.

Statistical work was tackled by all the classes and pictorially recorded. Pictures, drawings, blocks, beads and coloured squares were used to graph ages, attendance, heights, volumes, weights etc. This work, of necessity, involved a lot of measuring and counting. Emphasis was put on the discussion and interpretation of each graph and a 'white paper' was written whenever possible.

The older pupils were very interested in choosing, from mail order catalogues, outfits for holidays, sporting activities, weddings etc., and in finding the total cost and calculating the weekly payments. Simple ready reckoners were made and used. Meals were chosen from menus, pocket money was budgeted and grocery lists were compiled from newspaper advertisements. Real life situations were used as much as possible.

The older boys were introduced to a study of probability, using coins and dice. Combinatorial work emerged from playing with dominoes and this in turn led to a study of figurate numbers, pattern in number and a fresh look at the multiplication tables. Mathematical models were made for the figurate numbers.

All children love working with coloured pencils, scissors and cardboard and many of our children are very skilful in craft work. These skills were applied to a study of shape and soon every available display area was filled with nets, models, curve stitchings, straw weaving, ink blots, tetrahedra and tesselations. The corridors began to resemble a modern art gallery.

There were, of course, many operational difficulties. We found that there was insufficient equipment for this type of approach and a great deal of improvisation and borrowing took place. Storage space became quite inadequate. The teachers had to do a tremendous amount of preparation. Discussion was inhibited by the language difficulties from which many special school children suffer. The greatest difficulty proved to be the wide range of ability in each class, a range which increases as the classes move up the school.

In spite of these difficulties, a high degree of success was achieved. The increased use of a variety of concrete materials, the use of activity and discovery methods and the postponement of 'doing sums' until this activity and discovery had taken place certainly improved the children's understanding at every stage in number work and games seemed to be as effective as the more traditional drilling methods. The use of pictorial representation and the building of mathematical models helped the children to discover many relationships which could easily have been lost in a welter of figures. The study of shape as an integrating topic undoubtedly enhanced the children's understanding of measure and number and gave them a great deal of enjoyment in the creative and aesthetic aspects of mathematics. One fact which did emerge was that the children were interested in the New Maths.

I realise that the children will soon forget some of the work that has been done. But does it really matter if the pupil quickly forgets that the circumference of a circle is a little more than three times its diameter, or that there are six different ways of arranging three coloured cubes? Surely what DOES matter is that the pupil has had the experience of successfully solving these problems. Our children did improve in solving real problems, in applying the techniques they had learned to new situations and in thinking a little more clearly. This process of thinking is, after all, one of the main aims of any child's education.

The evidence of the success of these and other investigations into curriculum development and methods of teaching is sufficiently convincing to justify the adoption of the New Maths in Special Schools. These changes will not be wrought overnight and will require a great deal of thought and planning.

Many experienced teachers, through no fault of their own, have had no training in these methods of teaching mathematics and any attempt at innovation must be preceded by adequate in-service training. The Head Teacher must be convinced that this is the best way to teach mathematics and must give as much support, encouragement and constructive criticism as possible. It would be most unfair to throw teachers in at the deep end and leave them to sink or swim. The attitude of the teachers is an important factor and it would be most unfortunate if teachers construed attempts at change and improvement as implying that all of their previous hard work and achievements were

being held in contempt. It is possible and desirable to retain the best of the 'old' ways while adopting the best of the 'new' ways.

Considerable classroom re-organisation is essential to provide an environment suitable for activity methods. Much additional equipment and storage space is necessary and teachers must be provided with every possible aid to help ease their often tedious burden of preparation. Class size should be held within reasonable bounds. It is imperative that each teacher has the guidance of a carefully planned progression of work. This guidance has been sadly lacking in the past.

It would be foolhardy to pretend that the period of transition would be other than fraught with problems, but the undoubted advantage to the children should outweigh any other consideration.

Mrs. Duncan, of Hamilton College of Education, was involved with the in-service mathematics exercise (Mrs. Watterson's article) which was intended to benefit schools by increased teacher skills. She is now in the process of setting up resource centres for mathematics in a limited number of special schools in Glasgow and Lanarkshire. While teacher training or development will be an important part of this exercise it will not be its sole function. Mrs. Duncan will spend some time each week in these centres and will supervise the selection of suitable equipment and materials which will be placed in them. In this case the schools will benefit from enrichment by resources in the form of things as well as skills.

One of the schools with which Mrs. Duncan will be involved in this project is St. Kevin's in Glasgow. This school has already been the subject of a similar enrichment project which concentrated upon reading and language arts. This project was funded by the Scottish Education Department and was responsible for the establishment of two resource centres in primary special schools in Glasgow. The language arts project was supervised by Jordanhill College of Education and the University of Glasgow. These agencies received the full co-operation of the Special Schools Section of Glasgow Education Department, under the Adviser in Special Education, without whose help progress would have been impossible.

In such co-operation between various educational agencies lies the greatest hope for the continual improvement of special school provision.

THE READING AND LANGUAGE ARTS RESOURCES CENTRES

The First School

The first centre consisted of a concentration of language arts teaching materials and was set up in St. Kevin's School. The room available was a large one and with the installation of additional power points it has been possible to distribute the tape recorders and Language Masters in such a way that pupils can work with a minimum of distraction.

Initially the intention was that small groups of pupils should be given a concentrated reading and language-arts programme by a remedial teacher who would be resident in the resource centre. Unfortunately due to teacher-shortage this plan had to be abandoned and instead it was decided that the resource centre would have to cope with entire classes of up to sixteen children at one time.

This change in emphasis brought about organisational problems but with the appointment of an auxiliary, who is permanently based in the resource centre, it has proved possible to cope with this number.

The resource centre provides the teacher with a room in which a variety of teaching materials are laid out ready for use. Prior consultation with the auxiliary ensures that particular programmes are ready when a class enters the centre. The auxiliary keeps a record of the work of every pupil in each class and, in the absence of alternative instructions, will prepare the same programmes as when the class last attended. When a class is using the centre the auxiliary functions as a teacher's assistant, supervising children using tape-recorders and other more or less self-contained materials while the teacher gives individual attention to the pupils who most need it at that moment.

The Second School

After a few months a second centre was opened in St. Kenneth's School. From the beginning this centre was intended for use by entire classes. A full-time auxiliary is also employed here. Unfortunately the room available in St. Kenneth's was much smaller than the one in St. Kevin's and delays in the installation of power points limited the use of electrical equipment for some time. More divergent equipment, such as a Puppet Theatre and a 'cooking corner' was laid out in this centre but these have proved to be too distracting within the limited space. It is hoped that eventually it may be possible to extend the area of this centre by means of structural alterations.

Further Development

This has been an account of the establishment of these two centres as seen by an outsider. Of course when such an innovation becomes associated with a school it becomes part of the school and a part of the responsibility of the Headteacher. He is the one who must be satisfied with its value. Accordingly the Headteachers of the two schools have agreed to comment upon the functioning of the centres as they see it from the schools point of view.

The two centres have not developed along identical lines. The prevailing philosophies of the Headteachers and staffs will always determine the reality of any educational innovation.

So the two centres are developing in slightly differing ways. But the important thing is that they are developing and that both schools have found them to be of value in their day to day work.

Resource Centres in Primary Schools for the Mentally Handicapped

1. **Mr. J. Monaghan, Headteacher, St. Aidan's School, Glasgow (formerly Headteacher, St. Kevin's School).**
2. **Mrs. I. V. Thacker, Headteacher, St. Kenneth's School, Glasgow**

The Centre

The Reading and Language room at St. Kevin's has developed from a Scottish Education Department project. The audio equipment consists of tape recorders, both open spool and cassette and Language Masters. These are accompanied by various programmes designed to assist in language development and the teaching of reading. The approach is a multi-media one, the teaching material is in the form of workcards, tape, books, toys and board games involving visual matching and memory. Different combinations of materials may be employed in any one teaching programme. The teacher, therefore has a wide range of resources to choose from and can select what is considered to be most suitable for any particular individual or group. Blank tapes, cards and cassettes are also available for the preparation of original material.

Organisation

Every class is alloted at least one session per week in the centre. The usual way of organising a session is to consider it as two periods of half an hour and to group the pupils in two sections. One section will spend the first half hour doing the reading exercises, i.e. tape recorder, Language Master and associated games. Meanwhile the other section, in small groups, will be engaged with language games. For the second half the two sections may interchange or, if better readers are present, some can do more advanced work with comprehension packs, while the others record and listen (possibly question and answer) using the cassette recorders. Five or ten minutes are left at the end of the session to conclude with a story, usually read by the teacher.

The Auxiliary

All activities must be carefully guided and supervised by the teacher, but she is given assistance in the preparation and presentation of all equipment and material by a competent auxiliary.

Before each session, by arrangement with the teacher, everything is 'laid on' for the class. Throughout the session assistance is given with the equipment and afterwards all is carefully put away. The operation of such a centre would be inordinately time consuming and tedious without the services of a capable auxiliary. Any teacher wishing to pursue a particular topic further in her own classroom may borrow as available any item from the resource room.

All pupils and teachers look forward to their visits to the centre and the teachers report that it provides an encouraging stimulus in reading and language arts. We look forward to real progress and development even in these early days.

Report on Resource Centre for Reading and Language Arts

St. Kenneth's School for Mentally Handicapped Children Roll 140 - Girls 47: Boys 93

The School

St. Kenneth's School for M.H. Pupils age 5-13 years serves the East End of Glasgow which embraces Easterhouse, Garthamlock, Parkhead and Blackhill. Intelligence Quotients range from 46 to 76. The school itself is situated in the heart of the Blackhill Area which is beset by problems.

Many of our parents and children are physically, mentally, emotionally and socially deprived. As a result our pupils are admitted to school in a far from receptive frame of mind. Unable to manage in ordinary school, they have suffered complete loss of confidence, nervousness at their inability to succeed and have often developed behaviour problems. Outbursts of temper are common and they have a strong antipathy to learning. We receive a greater number of boys who by nature ar more aggressive than girls. These problems require very careful handling on the part of the Teacher.

On admission to our schools the Teacher must first set to work to change the whole attitude of the child with regard to learning. A suitably conducive climate must be established before the child can begin to learn. Therefore the Special School classroom must first of all be a place where the child likes to be. It must be colourful, warm and friendly and reassuring. Confidence which has suffered by failure must be renewed in the child who finds praise for his smallest efforts.

The tension and upset which have built up in the Mentally Handicapped child often show themselves in enuresis, nail-biting, speech defects and hysterical outbursts. At first the child may refuse to take part in class activities. Gradually in this new relaxed setting, under the guidance of an experienced and skilled teacher, the child begins to express himself and lose his fears of trying to read and write. These problems are evident in the large number of children, especially boys, who cannot read on admission to Special School.

We found that, in the case of the younger M.H. child, being in a class with a maximum roll of 20, plus extra and individual tuition given by a teacher skilled in varied remedial techniques, was sufficient to start the child reading.

However often with the older child this was not enough. He has already been shown how to read by sounds, look and say, and finally ita-still with poor results. For such children we welcomed the introduction of a reading resource centre to St. Kenneth's.

Organisation

A room was set aside and equipped with 4 cassette recorders, 1 Language Master, 1 tape recorder. At first we had only the minimum of electrical points and no earphones. This meant that only 6 children could use the machines. Later we had to reduce this number to three children using the machines as

the noise was too great when 6 children used them at one time. As a class is likely to have 17 children, it became necessary to find a way of occupying the remaining children. This was done by using various sound matching cards and games which are an aid to reading.

It was also suggested that the introduction of a Puppet Theatre, Tea Room and Library Corner would help the children with language development which is so important to the understanding of reading and also allow the teacher to concentrate on the training of children in the use of machines. Because of the lack of space these have been set aside meanwhile. Additional electric points and earphones now make it possible for a whole class to be employed on the machines.

The Auxiliary

Our application for a full time Auxiliary to be employed in our Resource Room has been granted. This lady sets out the machines and tapes as requested by the class teacher who is able to go into the room and set the children to work on the various machines with a minimum of delay. She is most capable and is helpful and encouraging to the children while the Teacher works with individual groups.

Strengths and Weaknesses

The Centre has proved to be the ideal solution to the problem of the older child (11-13 year old) who refuses to practise sounds, or use a simple reader, on the grounds that it makes him feel foolish. The idea of using a machine appeals to older children. Use of audio-visual material has been particularly successful. Teachers are already beginning to request blank tapes in order to make their own material with particular bearing on specific difficulties experienced by children in their classes. They also request the use of recorders and tapes to reinforce in the classroom work done in the centre.

Reading work books are very popular. Programmes have been devised whereby the work books are used with tapes in exercises in sound discrimination.

The Language Master is very much in use and as well as improving reading ability, it helps with speech, as the children are anxious to speak clearly in order to hear their own voice to best advantage. Unfortunately the English accents of the speakers on the tapes is not familiar to our Scottish children. This we hope to remedy by making our own tapes. So with regard to non-readers in the three top classes the centre has been a success. It tends to be used more by teachers for children with particular reading difficulties.

Teachers of younger children were less enthusiastic about the Resource Room as the younger child needs constant supervision when using the teaching machines. Tapes are too impersonal and often too fast. Preparatory Class I did not use the room. The teacher felt that her own pre-reading materials were preferable to the material in the Resource Room. The younger the child the more repetition is required and such children really look at their teacher as she speaks.

Other children who can read reasonably well still progress most by individual reading to their own teacher in their classroom.

Summary

The Resource Centre has proved to be most useful with older children who have particular reading difficulties. In order to benefit fully from the centre the number of pupils must be kept to a minimum. Taped material is most effective if recorded by someone with an accent familiar to the children.

Novelty is very important in the education of mentally handicapped children. A new approach can be responsible for breaking down barriers caused by failure to learn by more formal methods.

As part of the same Scottish Education Department project which set up the language arts resource centre a full time researcher was funded to consider curriculum development in secondary special schools. Stenhouse (1975)* has said that

> **"the curriculum development movement is an attack on the separation of theory and practice".**

The researcher co-operated with a group of teachers from Glasgow special schools- probably the best means of mounting such an attack.

One of the results of this co-operation was the production of teaching material designed to promote social education in Glasgow Special schools. This material is now considered, firstly from the point of view of the researcher and then as seen by the classroom teacher.

***Lawrence Stenhouse-"An introduction to curriculum research and development"- Heinemann 1975.**

Social Education for the Mentally Handicapped

Frank McKee, M.A., M.Ed., Psychologist,
Glasgow Child Guidance Service

The 'Kerr Family' teaching material is an attempt to provide social education for mentally handicapped pupils in Glasgow secondary schools. It was produced by a research worker, financed by the Scottish Education Department, working with a team of teachers from Glasgow special schools.

Having examined some social education teaching materials, the team agreed that they were usually unsuitable for M.H. pupils because:

> "Too high a reading age is demanded of the pupils before he is able to benefit from the material.
>
> The material employs situations and sometimes language which is foreign to the very limited experience of our pupils".

In order to overcome these difficulties, the team decided to create new material which would,

> "Help the teacher to prepare the pupils to take their place in society.
>
> Be presented in such a way that the reading age required from the pupils in order that they might benefit would be one which was within the scope of most of our pupils.
>
> Make use of audio-visual media so as to reduce the dependence upon reading ability.
>
> Employ audio-visual media so as to assist the pupils to 'project themselves' into hypothetical, usually decision making situations".

Out of this resolution came **"The Kerr Family"**.
There are two kits, **"The Kerr Family"** and **"The Kerr Family are Going to Drumchapel"**. Each one contains cassette tape, slides, and workbooks. The family members are depicted on slides and introduce themselves on tape, "Hello, I'm Jim Kerr . . . . .". Every effort was made to make the material attractive and interesting, with constant emphasis on the local environment.

The material is intended to aid the class teacher in preparing special school children for adult life. Being aware that all teachers have developed their own individual style of teaching and that in special education great attention to the needs of the individual pupil is necessary, it was determined from the start that the material would in no way attempt to be 'teacher-proof'. It is presented to the teacher with 'suggestions' rather than 'instructions'. Observations are revealing the different ways in which teachers choose to employ the material. This flexibility of method should also increase the chance of adoption within the schools as it minimises the required change in classroom routine. The manner in which the material is 'institutionalised' provides guidelines for the production of further units.

The Kerr family live in Glasgow. Their building is due for demolition under a redevelopment scheme (a familiar situation in Glasgow). It is expected that teachers will take this opportunity to involve the class in discussion of the reasons for and inconveniences arising out of such compulsory removal. The Kerrs have the choice of moving to Drumchapel, which is still very much within the Glasgow environment, or making the break with Glasgow and moving to Livingston new town. The pupils should discuss this option from the point of view of the different family members. At the same time it is expected that they will acquire some basic geographic knowledge of Central Scotland, Glasgow-Livingston-Edinburgh. Field trips are strongly recommended if possible.

In introducing the family several social problems are touched upon but not as yet developed, e.g., the eldest son has not worked since leaving school a year ago; there is an aged grandparent who lives nearby; the mother may have to go out to work to make ends meet. It is hoped to focus attention on each of these singly in later units.

In the second unit, **'Going to Drumchapel'** the family have decided upon their course of action. Drumchapel has been chosen because of the team's wish to keep within the Glasgow environment which the pupils can readily recognise. The family are re-introduced with each of their reasons for choosing Drumchapel. Discussion is then focussed upon some of the problems of moving house. In this section the questions of purchasing new furnishings, measurement of necessary fittings, and above all, the family economics involved, are presented.

Teachers are helped to present basic subjects in a fashion which emphasises their practical relevance to a style of life with which the pupils are familiar. In identifying with the Kerrs the pupils have the opportunity of appreciating the value of a basic knowledge of geography (of a very local nature), home economics and arithmetic. At the same time they are given the chance to practise these skills in a realistic situation. In being exposed to and involved in the family difficulties of the Kerr family, the pupils have many opportunities to consider and discuss the problems which might confront an ordinary family. They are encouraged to cope with such problems in a rational fashion. In this way 'Social Studies' is being integrated within the teaching of curricular subjects with the stress upon the manner in which these subjects are all a part of everyday life.

In order to give the pupils every chance to understand and identify with the Kerr family and their difficulties, very little demand has been made upon literary skill. The presentation is almost entirely audio-visual. This also lends impact to the material. The family is closely based on a home situation which would be recognisible to most Glasgow special school pupils. The voices on tape have Glasgow accents and the scenes depicted on the slides are of Glasgow.

One criticism of this 'localising' is that it present difficulties in widespread diffusion of the materials. This, however, is more than compensated for by the added relevance to the pupils. In any case the basic ideas could be developed by teacher groups in any locality and, with a little amendment, there is no reason why The Kerr Family could not live in ..... Edinburgh or .....?

In March 1975 the project came to an end. The steering committee (representing Glasgow Special Schools, Glasgow Child Guidance Service, Scottish Education Department, The University of Glasgow, and Jordanhill College of

Education) felt that this area of curriculum development should be encouraged. Accordingly the research worker involved in the project was given employment within Strathclyde Region. A new panel is being recruited from those teachers who have already had experience of using the existing material in the classroom. In this way it is intended to ensure that further materials remain close to the practical realities of the classroom situation.

So much for the view of the researcher. But how did it look in the classroom? Mr. Feeley is a teacher in St. Aidan's School and he writes now on his view of "The Kerr Family".

"The Kerr Family"
in St. Aidan's School, Glasgow

Peter Feeley

"The Kerr Family" is an audio-visual kit produced for use in special schools for mentally handicapped pupils in Glasgow. It is designed for use with boys and girls between the ages of twelve and sixteen, in classes of twenty or so which are usually split into two groups. Many of these children come from less well-off families, often with a tradition of unemployment and consequently housing conditions tend to be poor.

One aim of "The Kerr Family" is to demonstrate the reasoned process by which group decisions are eventually arrived at. The Kerrs are faced with a difficult decision, their tenement house in Glasgow is due for demolition and they must decide where to go. The family consists of Jim Kerr, a bus driver; his wife Mary, whose mother lives close at hand; Agnes, 18, who works in a supermarket and is engaged; Alec, 17, unemployed since leaving school; and John, 15, Linda, 13, and Willie, 11.

The kit was designed so that every pupil in the group, regardless of reading ability, could participate. For this reason there is a strong emphasis on visual information and the entire script was recorded on cassettes. Workbooks are provided to create opportunities for offshoots from the main theme ranging from simple colouring-in to mini-projects of Geography, basic arithmetic problems, budgeting, and home decoration. Nevertheless, although considered potentially very valuable educationally, the workbook is a secondary consideration, the main emphasis being on class or group discussion, possibly using the technique of role playing to consider the problems.

I have used the kit with classes of First and Fourth Year boys and have noticed varied reactions. Certainly the information involved is presented with a success that a written process could not have achieved. The reading barrier is bypassed. Because of the open ended nature of the approach the reactions varied greatly. All identified immediately with the physical environment, the younger group especially being very keen to discover the exact location of the slum building shown.

This may indicate that many pupils would enjoy and benefit from tape/slide kits based on their local environment, which could lead to work on Geography and Social Studies. Older groups were keen to discuss vandalism, graffiti and gang violence.

It was automatically accepted that the opinions of the two wage earners Jim and Agnes plus that of the mother Mary Kerr were of much greater importance than those of Alec, unemployed, or the three still at school when the family's decision has to be made. It was also agreed that, no matter what the decision, the family should stick together. From these assumptions interesting discussions about democracy arose, building up from family and school organisation to local and national government.

It was also interesting to ask for an early decision on the question "Livingston or Drumchapel?", make a note of this and then return to the question after discussion of finance, job availability, types of housing, family convenience

and personal preference has been made. In most cases the decisions changed, which gave an opportunity to stress the way in which important problems had to be faced. In the class situation it is always more important to discover how the solution was arrived at than to discuss what it actually was.

I believe that further developments of the first kit such as "The Kerr Family are going to Drumchapel" which has already been created and the marriage of Agnes, which is one proposal for the future, could well be a very profitable method of presenting factual material upon which small projects could be mounted and food for group discussions on questions of social and moral significance. Having tried the technique of using role playing in discussion it also occurs to me that drama could usefully be introduced.

Also, if teachers are impressed by the method of presentation and find it successful they may feel encouraged to use other tape/slide material available or even to create their own to meet the particular needs of their classes. The pupils themselves can be involved in the making of these. The material is available, the techniques require only a moderate level of expertise and the cost is by no means prohibitive, even in these days of austerity. The local environment, litter, road safety, vandalism, personal appearance: these are suitable topics for this approach.

The need of the Mentally Handicapped pupil for a varied and flexible approach requires the Special School teacher to be constantly searching for and investigating interesting approaches to Education.

There have been attempts to provide external aid to schools on an 'ad hoc' basis, support systems set up for specific problem areas. There are, however, on-going systems of support which are constantly on hand and to which teachers can refer pupils with individual learning difficulties. The remaining two articles outline examples of such provision.

Miss Stewart is an adviser in the Torpichen Education Centre in Edinburgh. She indicates the part which the centre plays in providing a permanent service in special and remedial education.

Torpichen Education Centre, Edinburgh

Miss I. Stewart, M.A., Dip.Ed., Adviser, Special Educational Services, Lothian Region

The Torpichen Education Centre is part of the Lothian Region's department of Special Educational Services. It is primarily conceived as an advice and resource centre for remedial teachers and teachers in special schools. Teachers in primary and secondary schools who are concerned about children with reading difficulties or other learning problems are also welcome to make use of the facilities. In order to further the department's aim of bringing together all concerned with exceptional children of any kind, it also serves as a base for speech therapy services and provides clinical facilities for educational psychologists and doctors. The resident staff comprises two advisers and two assistant advisers.

RESOURCES

Within the Centre there is an on-going display of books and teaching aids for remedial work at all levels. Teachers may handle and assess the value of the Language Master, Synchrofax, Bingley Tutor, Tape Recorders (for which there are many commercially produced programmes available in cassette and reel), and other teaching machines. The reference library will be expanded into a Lending Library when finances permit. In-Service programmes afford, among other things, the opportunity for group discussions where common problems-and their solutions-can be shared.

The Torpichen Centre perhaps differs from many other teachers' centres in that it also provides for children. In association with the Child Guidance Service there is a Reading Unit for children with severe reading difficulties; a special unit for secondary boys with severe behaviour difficulties and another for secondary girls. It also provides a base for teaching English to immigrant pupils.

Reading Unit

The Reading Unit is one of four strategically based throughout the city. These Units are staffed by experienced Remedial Teachers and have a more generous allowance of 'hardware' than can generally be provided for the remedial teachers based in schools. The children are mainly between nine and twelve years of age, of average or above average intelligence, who, for a variety of reasons and in spite of remedial help in school, continue to underachieve in reading and spelling. In the Reading Unit they are given supportive individual help to suit their individual problems.

MALADJUSTMENT UNIT

In the Unit for maladjusted adolescents there are facilities for cooking, sewing and typing, in addition to academic subjects. A group of six girls attend every morning. They vary in type from the withdrawn inadequate to the aggressive

extrovert but have a common need for security. Some manage to return to Secondary School before leaving age-an important factor when they are looking for employment. There is a wide range of ability in the boys' group, which meets in the afternoons. Some can barely read, while others are relatively able. Last year one boy, with the help of the English Adviser, passed at "A" Level in SCE English, and this after eighteen months truancy from school. Instead of returning to school, he himself opted to join the Army, where he would be able to continue his education within a framework of security and discipline.

NON-ENGLISH UNIT

At present the non-English Unit caters for seventeen different nationalities. Approximately 75 children attend on a part-day basis, spending the rest of the day in their area schools. As far as possible, the classes are of mixed nationalities, so that communication in English is a necessity. The Chinese, coming as they do in the main from the New Territories around Hong Kong, are village children and find town life difficult. Their parents are mainly in the catering trade and the children are expected to work in the restaurant or shop after school and at week-ends. One of the fourteen year old Sikh girls is already engaged and her father wishes her to marry after she leaves school. She, however, would like to train for a job and to earn money like her Scottish peers. All need support and understanding while adapting to a new country. The first requirement is to see every child as a unique individual.

CASE STUDIES

In illustration of the supportive service the centre can give to schools, the following two case studies are included.

JOHN

When we first met, John was thirteen years old, nearly six feet tall and partially deaf. With an unsettled home background in various localities, he has seldom attended any school for more than a few months at a stretch.

He could not read and was deeply ashamed of his inability. This, combined with his size and with the fact that he had a wild temper which he could not control, made him a formidable opponent in playground battles. Deaf, maladjusted and illiterate, how could he be helped? It seemed clear that his educational failure was a major factor in his maladjustment. The deafness could be controlled by a suitable hearing aid.

At an interview in Torpichen Education Centre he was persuaded to discuss his problems. "It's like this," he said, "if any one else gives me an infant reader and pretends I can read it, I'll just throw it straight at their heads! It makes me sick to the pit of my stomach!"

The first step in rehabilitation seemed to be to prove to him that he COULD recognise a few words, and to build up a sight vocabulary. Phonics might follow later when his hearing had been attended to. But how? Books were obviously out. John had flown extensively and was interested in aeroplanes. We made a list of 10 words which one might expect to find at an airport-PASSENGER; FLIGHT; LUGGAGE etc. These were displayed singly, by

means of an overhead projector. John was persuaded to trace the projected word with his forefinger, while he repeated it. Later he could trace on a table top (i.e. the kinaesthetic approach reinforced the visual, as his auditory sense was defective). The next step was to produce these 10 words on ektograph slides and to teach him to project these. Initially he could only retain 4 words over 30 minutes; but he improved with practice. Incentive was provided by the prospect of a visit to the local airport when he could unfailingly recognise the 10 words he had learnt. Several weeks and several temper tantrums later, John achieved this and enjoyed his visit to Turnhouse immensely. Great care was given to his placement in a Special School. There he is learning to control his temper–he knows he can turn for instant help to the staff. He is beginning to read, helped by the remedial teacher. His deafness has ceased to bulk very largely, as tension decreases. John is by no means out of danger, but he is improving.

RUTH

Ruth, on the other hand, is a highly intelligent child from a supportive and understanding home. By the time she was six it was apparent to everyone that she was in difficulties educationally. Orally, she could hold her place in any lesson but, after 18 months in school, she had failed totally to recognise the letters of the alphabet. Although on medical examination no gross neurological problems were brought to light, she showed marked directional and visuo-spatial problems and her gross and fine motor control were poor. In teaching her to read, we laid emphasis on the auditory and kinaesthetic skills, as visual memory and visual discrimination were both weak. At eleven, Ruth is coping with the work of P.7 very adequately. She can get the gist of an English passage relatively easily, though her reading remains inaccurate and slow. Motor control has improved with maturation, so her written work is much better. She makes spelling errors of a phonic type (which are relatively easily dealt with, as compared with other types of error). As she is now expected to read widely, she uses a cassette tape recorder as others use a pen. Her parents co-operate in taping many of the necessary text books and she tapes answers to comprehension exercises, etc. Directional problems persist: she is liable to write 'aup' for 'and' when tired or under stress. Her future seems bright, however. Given the continued support from home and school, allied to her own drive and determination, she should be able to manage a relatively normal secondary course.

SUMMARY

To sum up, the Torpichen Education Centre is aimed to provide advice and in-service training for all teachers concerned in any way with the education of children with special needs: to provide a focus and meeting point for Child Guidance, Health, Speech Therapy and other services concerned with their assessment, education and treatment and to provide specialised teaching situations for selected groups of such children.

The Torpichen Centre is obviously at the hub of an extensive system of educational provision in the Lothian Region. Many of the facilities it provides would not, in other regions, be under one roof. In Strathclyde, for example, immigrant education, maladjusted children and special schools would all be dealt with be different sections of the educational administration. In Glasgow the provision of primary remedial teachers is a function of the Child Guidance Service and Douglas Bain, who is Assistant Principal Psychologist in charge of remedial education, outlines the plan for a system of remedial centres.

Remedial Centres in Glasgow

Douglas Bain, Assistant Principal Psychologist, Glasgow Child Guidance Service

Glasgow's first remedial centre, the Rosevale Remedial Centre, was opened in Partick in April 1973 to be followed in January 1975 by a centre in Drumchapel. Our hope is that, when the resources are once again available, the number will grow to five–each serving an area of the city.

While the development of the centres was influenced to some extent by the Tizard Report of 1972, they can be seen, more directly, as a logical outcome of the growth of a primary remedial service in Glasgow. During the 1960s, the Child Guidance Service had been associated with the build up of a team of part-time remedial teachers based in primary schools working in close co-operation with the Child Guidance Service. Valuable experience had been derived from the work of two Dyslexic Units which had also been established during this period and by the early 1970s it had become clear that an essential element in any comprehensive remedial service was a system of remedial centres which would not only provide for the needs of a significant minority of children with particularly severe learning difficulties but also serve as a support system to a growing primary remedial service. The model we adopted was very similar to that suggested by Tizard and later developed by the Bullock Report. Our aim was that the centres would:

(i) Cater for children with severe learning difficulties bringing together remedial teachers, psychologists, speech therapists, psychiatrists, neurologists, etc., in the diagnostic and remedial process;

(ii) Provide support to schools in developing remedial work particularly to remedial teachers. The centres would carry extensive stocks of remedial materials; participate in the in-service training of remedial teachers; give advice to schools on all aspects of remedial work;

(iii) Undertake certain research and development work particularly the production and evaluation of materials coming on to the market. We would also hope to make a theoretical contribution to the understanding of the nature of these specific learning difficulties.

However to list a set of aims is one thing; to translate these aims into flesh and blood practice in a real life educational community is quite another. Nevertheless, over the three year period, the centres have put down sturdy roots and have become an accepted part of the educational scene in Glasgow. Possibly the most crucial aspect of our work has been to establish the correct relationship between the centres and the schools they serve. We have been at pains to project the contribution of the centres as **complementary** to the remedial work of the schools rather than as an **alternative** to it. The children attend the centre on a part-time basis only and every attempt is made to ensure that class teachers and remedial teachers in schools are involved in a joint attack on the child's remedial problems in the treatment process. It is the job of the specialist staff attached to the centres to find a way forward for each child and to achieve some kind of a breakthrough in a stalemate situation. But such problems are not

solved as a result of attending a centre for a year–the remedial support must be continued over a long period by the schools themselves. Teachers from the centres visit schools regularly to win the co-operation of the staff while the child is attending the centre and to ensure a follow-up after discharge from the centre.

That there is a need for such facilities is beyond question. Over 150 children have been accepted for treatment and there is always a waiting list for each centre. This number represents only a tiny proportion of the number of children failing to make progress in basic literacy and numeracy skills because of serious learning difficulties. We have been careful not to set up pre-conceived criteria for entry to the centres. The nature of these specific learning disorders are still far from clear and our approach has been to consider any child who, despite the best efforts of class teachers and remedial teachers, is persistently failing to respond to teaching. We are acutely aware of the seriousness of removing a child from his school even if only on a part-time basis and we only take such a step as a last resort. An analysis of referrals to date reveals that primary and secondary children have come forward in roughly equal numbers with ages ranging from 7 to 18 but with boys outnumbering girls dramatically by 10 to 1. While at secondary age the aetiology of reading failure is often obscure, we are beginning to be aware of certain patterns of disability among the younger children. In a substantial proportion of cases there is evidence of some kind of neurological impairment often associated with birth complications.

A common manifestation of such disorders is a history of serious speech delay and/or articulatory defect. These language and speech problems can have a serious impact on the child's capacity to make a phonic analysis of words and hence there is failure to master the phoneme-grapheme correspondences so vital in learning to read and spell. Problems of distractability and hyperactivity abound but it is nearly always very difficult to decide whether these have an organic or a social/emotional base. One thing has emerged very clearly and that is that distinctions between 'retarded' and 'backward' children so fashionable in current remedial theory have proved to be useless in trying to fathom the complexities of such problems.

And what of our 'success' rate? Very difficult to assess. There are few dramatic cures (there are one or two!) and improvement is usually the result of patient and devoted teaching over at least a year and often longer. Results with secondary children are usually achieved more quickly but of course treatment has usually been left far too late. But, although progress is slow, we are pleased that in the vast majority of cases substantial improvements do occur.

The Rosevale Centre houses an extensive display of remedial materials, including a range of 'hardware' and there is a steady stream of remedial teachers interested in keeping abreast of new materials. But more than that, Rosevale has become a focus of interest for all and sundry involved in or merely interested in remedial work and an important part of the work of the staff is talking to visitors, taking part in the training of students and dealing with enquiries and requests for help and advice.

The evaluation of materials–especially expensive items–is one of our on-going functions. Our most ambitious project–carried out in conjunction with Glenwood Secondary School–was to evaluate the very expensive Sight and Sound Videomatic Tutor (a remedial programme involving the use of typewriters). At the printers at the moment is the final version of the Rosevale Diagnostic Reading Test which, in draft form, was widely tested and approved of by

Glasgow remedial teachers and this test will no doubt find its place as part of their stock in trade. A recent development has been the construction of a complete primary remedial maths course by one of the remedial staff and this is to be published shortly. On the research side, we are undertaking a detailed study of a small group of children with severe audio-phonic difficulties with the aim of developing a team approach to the diagnosis and treatment of such problems.

But we have only made a small beginning and many problems have to be overcome. At the moment a black cloud hangs over the primary remedial service. No recruitment of staff is permitted at present and there are many schools still waiting for a remedial teacher. This means that not only are the general remedial needs of these schools not being met but children with several learning problems are less likely to be identified and treated. With only only two remedial centres at present, only Drumchapel Centre is able to act as a local service while Rosevale is having to meet the needs of the rest of the city. It is imperative that progress should be continued towards a fully developed primary remedial service. This means supplying a remedial teacher to every school that needs one and extending the network of remedial centres to support such teachers in their work.

CONCLUSION

As we stated at the outset, our intention is to give some idea of how resources are being employed in Scottish special education today.

As you have seen, there are many interesting developments taking place and there are, no doubt, many other proceedings worthy of inclusion. It is encouraging to note the interest and enthusiasm which is invested in special education. But the object is not complacency. We observe the present only that we may improve the future. Special education, no less than any other sector of education, must be continually developing. There is always room for improvement. Development is more easily promoted in the knowledge of the present situation. We hope that by disseminating this knowledge we will help to encourage the development of special education to the ultimate benefit of the pupils.